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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,230	02/09/2004	Masakazu Ushijima	0353-0202P	3162
2292	7590	05/03/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			ALEMU, EPHREM	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

2821

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Ex

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/773,230	USHIJIMA ET AL	
	Examiner	Art Unit	
	Ephrem Alemu	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5 and 7-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>5/10/04, 6/17/04</u>  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because of the following informalities: (i) Figures 16, 17, 18, 19, 20, 21 and 24 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

(ii) The drawing illustrated in Fig. 22 is objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the reference characters 1, 2 and 3 illustrated in Fig. 22 is not mentioned in the description. Further, reference characters 1, 2 and 3 have been used twice in the same Figure with different embodiments. Since Fig. 22 is a diagram, which is useful in explaining the construction of a shunt transformer as described in the brief description of the drawing, it is suggested that Fig. 22 should be break down as Figs. 22a, 22b, 22c and 22d to clearly explain the construction of the shunt transformer according to the present invention. No new matter should be added. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference characters in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet

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submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The abstract of the disclosure is objected to because the abstract contains over 150 words. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: (i) The specification contains a drawing in page 5 is not in compliance with 35 USC 113. The drawing needs to be deleted and submitted in compliance with 35 USC 113. See MPEP § 608.01 and 608.02.

(ii) In page 8, line 15, "Fig. 13" should be replaced with --Fig. 16--; and

page 17, line 33, "shut transformed" should be replaced with --shunt transformer-- because of typographical error.

(iii) The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Appropriate correction is required.

***Claim Objections***

4. Claim 14 is objected to because of the following informalities: in lines 2-3, "said shunt circuit" lacks antecedent basis; and in line 5, change "resource" to --source--. Appropriate correction is required.

5. Claims 4, 5 and 7-13 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-3, 6 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 15-19, the recitation "wherein a synthetic impedance characteristic of an electrode portion of each of said discharge lamps except a series capacitive component thereof and a positive column has a negative resistance characteristic" is not understood. What is synthetic impedance characteristic of an electrode?

Claims 2, 3, 6 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being dependent over a rejected base claim 1.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al.

(US 6,717,372).

In light of the rejection 35 U.S.C. § 112 second Paragraph that set forth herein above, the following 35 U.S.C. 102 rejection is based on prior art which reads on the interpretation the claim language of the instant application as best as understood by the Examiner.

Re claim 1, Lin discloses an inverter circuit for discharge lamps (i.e., multi-lamp driving system) for multi-lamp lighting (Figs. 3-6).

wherein two coils (W1, W2) connected to a secondary winding of a step-up transformer (T1) of the inverter circuit (i.e., driving circuit 10) are arranged, and magnetically coupled to each other to form a shunt transformer for shunting current such that magnetic fluxes generated thereby are opposed to each other to cancel out, and discharge lamps (Lp1, Lp2) are connected to the coils (W1, W2), respectively, with currents flowing therethrough being balanced with each other, wherein a large number of discharge lamps are arranged in a surface light source (i.e., for LCD backlight systems) (Figs. 3-6; Col. 1, lines 12-18), an electric conductor being arranged adjacent to the discharge lamps (Figs. 3-6), wherein parasitic capacitances (i.e., which is inherent in high voltage carrying conductor) are generated between the discharge lamps and the adjacent conductor, the parasitic capacitances being added to each other as appropriate via the shunt transformer, wherein an impedance characteristic of an electrode portion of each of said discharge lamps except a series capacitive component

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thereof and a positive column has a negative resistance characteristic (i.e., which is inherent for a discharge lamps), and wherein lighting of each of the discharge lamps is caused by the fact that a reactance of an inductance related to balancing operation of the shunt transformer (W1, W2) (Figs. 3, 4), the reactance being in an operating frequency of the inverter circuit, exceeds a negative resistance of each of the discharge lamps (Figs. 3-6; Col. 2, line 45- Col. 3, line 44).

Re claim 2, as best understood, given Lin's inverter circuit for discharge lamps (i.e., multi-lamp driving system) for multi-lamp lighting, when one of the discharge lamps (Lp1, Lp2) connected to the shunt transformer (W1, W2) is not lighted, a core of the shunt transformer (W1, W2) is saturated by a current flowing through a lighted one of the discharge lamps, whereby a voltage having a high peak value is generated at a terminal of the unlighted discharge lamp of the shunt transformer, thereby applying a high voltage to the unlighted discharge lamp would have been inevitable.

Re claims 3 and 6, Lin further shows a shunt circuit is formed by arranging a plurality of shunt transformers (W1, W2, W3, ... Wn), and wherein lamp currents of a plurality of discharge lamps are simultaneously balanced with each other with respect to one inverter output (Fig. 6; Col. 3, lines 29-44; wherein the shunt transformer configured to have three or more coils arranged such that magnetic fluxes generated by the respective coils are opposed to each other to cancel out, whereby respective lamp currents of discharge lamps connected to the coils are simultaneously balanced with each other).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,717,372).

Re claim 14, Lin does not show the surface light source system as claimed in claim 14.

However, Lin's inverter circuit for discharge lamps (i.e., multi-lamp driving system) for multi-lamp lighting is used for LCD backlight systems.

Therefore, given Lin's inverter circuit for discharge lamps (i.e., multi-lamp driving system) for multi-lamp lighting as discussed above in claim 1, arranging the shunt transformer in a surface light source system as claimed in claim 14, would have been in the skill of an artisan in order to provide sufficient backlighting for the LCD panel.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Klier et al. (US 6,717,371); De Groot et al. (US 6,323,602); and Ghiringhelli (US 4,016,477); also teach similar inventive subject matter.

### ***Correspondence***

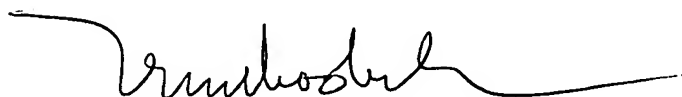
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don K Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "V. M. H. S. L.", with a long horizontal flourish extending to the right.

EA  
4-26-05